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REPORT OF INSECT CONTROL WORK

CARRIED OUT BY PICKERING LUMBER COMPANY

ON THE BADGER SALE AREA, MODOC NATIONAL FOREST, CALIF.

DURING SEASON OF 1928-1929

by

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August 13, 1929
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REPORT OF INSECT CONTROL WORK CARRIED OUT BY PICKERING LUMBER COMPANY ON THE BADGER SALE AREA, MODOC NATIONAL FOREST, CALIF. DURING SEASON OF 1928-1929

Under the terms of the sale made to the Pickering Lumber Company on the Badger Unit of the Modoc National Forest, the company was required to cover with insect control 15,000 acres of the sale area during the first year of the operation.

The area selected for the first season's work took in the southwestern portion of T 44 N, R 8 E, including all the Government land south of Badger Well and west of the Alturas-Badger Well Road and the Pickering Company lands in the area just south of this district and west of Hog Lake to the west line of Sections 1, 12 and 13 in T 43 N, R 7 E. This area included some of the heaviest centers of infestation to be found on the Badger Unit.

The ownership was about equally divided between the Government and the Pickering Lumber Company. Within the boundaries agreed upon by both parties the land ownership was as follows:

	Acres	Per cent.
U.S.F.S.	8,520	49%
Pickering L. Co.	8,840	51
Total	17,360*	100%

*Estimated volume on area: 112,200 U.S., 123,800 Pickering; total, 236,000 M.bm.

History of Infestation Previous to Control

The infestation of the western pine beetle (Dendroctonus brevicomis) started building up in 1925, with a loss of 1.50% of the stand for that year. Evidently the stand was just ripe for a serious epidemic, since no recent epidemic had occurred on the area. The infestation built up very rapidly in the subsequent years and showed losses as follows:

Western Yellow Pine Losses Previous to Control

Year	Average % of Stand Killed	Volume of Loss on Control Area
1925	1.50%	3,540 M.bm.
1926	3.47	8,180 "
1927	10.95	25,850 "
1928	7.38	17,420 "

The summer loss of 1928 showed every indication of being as severe as that of the previous year; but as the winter loss developed it became evident that a very marked decline had occurred during the summer. Even so the winter loss was high, and ran about 125 trees per section on the control area.

Organization of the Work

Through agreement between the Company and the Forest Service the aid of the Bureau of Entomology was secured in supervising the marking of the infested trees.

The writer was designated to handle this work and organized a marking crew of three experienced "bug men", consisting of I.J. Hastings, W.J. Buckhorn, Ernest Buck, and later Otis Buck, who took his brother's place on the crew. The Forest Service intended to have a man on the job to learn the spotting work, but due to shift in personnel and the press of other duties no forest officer could be placed on the crew.

The spotting work started on October 15 at the northeast corner of the area and continued, with only short interruptions on account of snow, until completed during the last of December.

Mr. William Erwin, Logging Superintendent for the Pickering Lumber Company, took charge of the control operations. Soon after the opening of the work Ernest Buck, because of his previous experience in handling control work, was released from the spotting crew and placed in charge of the woods crews, which were doing the actual felling and burning work.

A very complete camp, with frame cabins on skids, was constructed by the Company at Brown's Well, with accommodations for forty men. Later this was moved to the portable mill site on the Tichnor Road.

About forty laborers were employed in the first treating work, including cook and helpers, saw-filer, truck driver and foremen. A base wage of $5.00 per day for common labor was paid and $1.20 deducted for board.

Amount of Work Accomplished

The spotting work was done by using a four-man spotting crew --three spotters and a compassman. Because of the green condition of the foliage of the infested trees, it was felt that the larger crew of spotters was necessary to inspect the area adequately. Each spotter covered a three-and-one-third-chain strip. The crew covered 320 acres each working day, and completed marking the 17,360-acre control area in two and one-half months. The trees were numbered serially, blazed on three sides, and a card in an envelope was tacked on each tree or group of trees. The compassman mapped the trees' locations on a four-inch-scale plat, and later made copies on an eight-inch scale for the use of the treating crews.

The cost of the marking work was divided between the Pickering Company and the Forest Service. The Bureau of Entomology furnished trucks and the part-time services of the writer. The total cost of this work is shown in Table 1.

The bark-burning method of control was used on all the Government land within T 44 N, R 8 E, comprising about half the area. The trees were felled and trimmed, the upper half of the log peeled, and the bark and brush burned on the log. Punky trees frequently burned completely, but the lumber in sound trees was little damaged by the burning work. A later check made by Parker, the Forest Service project man, and Erwin of the Pickering Company showed about a fifteen per cent loss from burning. The burning work on the government township was completed about the first of December.

Logging and salvaging of the infested trees was the system used on the other half of the area comprising the intermixed private and government lands of T 43 N, R 7 and 8 E. Here the infested trees were felled, trimmed and skidded to a small mill which had been constructed on the Tichnor Road near the middle of Sec. 7, T 43 N, R 8 E. At the mill the logs were cut into lumber and the slabs containing beetles in the bark were burned. The skidding was done for the most part by the use of Athey wheels, and in some cases logs were brought from distances of four and five miles. About 5,000 board feet were carried in each load. This operation proved the practicability of treating infested areas by logging and salvaging the beetle-killed trees.

Within a radius of one mile of the mill all the recent beetle-killed trees, dead for one or two years, were salvaged and milled. These trees considerably increased the mill output.

The following tables show the amount of work accomplished and the cost. The figures on cost were very kindly supplied by Mr. Garrett, resident manager of the Pickering Lumber Company:

Table 1

COST OF MARKING INFESTED TREES*

Period October 15 to December 31, 1929

Trees Spotted	Volume Spotted	Acres Covered	Cost
2728	2,319,900	17,360	$1266.61

Cost per tree - $.46
" M.bm - .55
" acre - .07

*Cost of marking divided 50-50 between Forest Service and Pickering Lumber Company

Table 2
COST OF TREATING INFESTED TREES BY THE BURNING METHOD
(on government township)

Trees Treated	Volume Treated	Acres Treated	Total Cost	
1261	1,071,850	6400	---	U.S.F.S.
33	28,050	200	$5,012	Pickering L. Co.
1294	1,099,900	6600	$5,012	Total

Cost per tree - $3.87
" M bm - 4.56
" acre - .83

Table 3
COST OF BEETLE CONTROL BY LOGGING AND MILLING
(on T 43 N, Rs 7 & 8 E)

No. Trees Logged		Volume Cut	Acres Treated	Cost (logging cost only)
U.S.F.S.	97	82,500	2,120	---
Pickering	1337	1,313,114	8,640	$12,315.38
Salvage	560	476,000	"	"
Total	1994	1,871,614	10,760	$12,315.38*

*Without overhead, interest or depreciation charges

Cost per tree - $6.18
" M bm - 6.58
" acre - 1.14

Comparative Cost of Burning and Logging Methods of Control

A fair comparison of the net cost of the two methods used on this project can be made only after the credits arising from the operation have been taken into account.

Where the burning method is used and subsequently the logs are brought to the mill, there is the logging cost to be added to the control cost as well as a reduction in merchantable volume due to checking and fire injury. This reduction in volume is estimated at 15% for the fire damage and 25% for one year of checking, or a total reduction in volume of 40%.

With the logging method the trees are taken to the mill while still green, and the only deterioration is that inherent in this class of timber and in no way chargeable to the method of handling.

For the purpose of comparison we may assume that these beetle-infested logs are worth $8.00 per M.bm. at the mill, or about 50% of the value of green logs. The only difference in the two is a certain amount of blue stain which has already developed in the outer sapwood. It is felt that this is a very conservative estimate of their value. A cost accounting of the two methods would stand about as follows:

Burning Method	Costs per M.bm. Debits	Credits
Treating Cost (original)	$4.56	
Logging Cost (subsequent)	4.50	
Value at Mill ($8.00 less 40% for deterioration)		$4.80
TOTAL COST at mill	$4.26	

Logging Method	Debits	Credits
Logging Cost (original)	$6.58	
Value at Mill		$8.00
NET PROFIT at mill		$1.42

In other words, beetle control through logging and salvage can be done at a profit, while the old method of burning can be done only at a large loss. At least, under the conditions found on this area this is the case, and it is evident that the method would be justified on a great many other areas in the western yellow pine region.

Conclusion

Taking the control job as a whole, the Pickering Lumber Company carried out a very splendid piece of work and should be commended upon its quality. Where trees were treated by the burning method the work was neatly done and the bark and brush disposed of without injury to living trees, leaving the area in excellent shape.

A preliminary survey of the area in August (1929) indicated that a very satisfactory clean-up had been secured. Very few newly-infested trees were in evidence, and it looked as though a reduction of fully 70% had been brought about. A more detailed survey to be made in September will determine just how satisfactory the results have been.

Respectfully submitted,

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Entomologist.

Approved by

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Dated: August 13, 1929.

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WESTERN PINE BEETLE SURVEY

HAPPY CAMP-LAVA BED AREA

MODOC NATIONAL FOREST

CALIFORNIA

EIGHTH ANNUAL SURVEY

REPORT

DECEMBER, 1929

by

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